ABSTRACT

ANALYSIS OF OSTEOCALCIN LEVELS IN PEDIATRIC LUPUS NEPHRITIS WITH MEGADOSE METHYLPREDNISOLONE THERAPY

(Study at Division of Nephrology, Pediatric Department, Dr. Soetomo Teaching Hospital Surabaya)

Background: Lupus nephritis (LN) is a severe lupus and life-threatening manifestation of SLE. LN should be treated aggressively with megadose methylprednisolone which may cause suppression of bone formation and decrease osteocalcin levels.
Objectives: To analyze the effect of megadose methylprednisolone treatment (three days administration of 10-30 mg/kg/days methylprednisolone pulse) on osteocalcin levels in pediatric patients with lupus nephritis.
Method: A prospective observational method was conducted in this study. It was approved by the Ethics Committee of Dr. Soetomo Teaching Hospital Surabaya. Data was collected from July to September 2018. Osteocalcin levels were measured at day 1 (before patients received methylprednisolone pulse treatment) and day 4 (after the 3-day of methylprednisolone pulse treatment). Blood samples were obtained in the morning at 06.00-10.00 am. The collected data were analyzed statistically by paired t-test.
Results: Seventeen patients were recruited in this study and four patients were observed again in the next cycle. Therefore, 21 sample were analyzed in this study. They were 7-16 years old (53% were boys). Forty-two percent patients were in 2^{nd} cycle of methylprednisolone pulse therapy. There were no correlation between prednisone and calcium supplementation vs osteocalcin levels prior to methylprednisolone pulse ($p > 0,05$). The baseline of osteocalcin levels in majority patients were lower than reference value. After 3 days of methylprednisolone pulse therapy, osteocalcin levels decreased 51.89% from 23.197 ± 10.108 ng/ml to 11.159 ± 9.024 ng/ml ($p < 0,01$).
Conclusion: Megadose methylprednisolone therapy can cause an immediate decrease in osteocalcin levels. Further study is important to find out how long the suppression occurs.

Keywords: Osteocalcin, megadose methylprednisolone, glucocorticoid pulse, lupus nephritis, children